

*Compliments of the Author.*

## THE INFLUENCE OF MATERNAL IMPRESSIONS ON THE FETUS.

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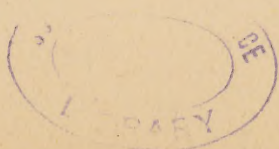
THE belief that maternal impressions may affect the nutrition and development of the fetus in utero has existed from the earliest periods of which there are any records. The oldest evidence of this belief is found in chapter xxx of the Book of Genesis, in an account of a business transaction between Jacob and his father-in-law Laban, in which this belief prompted Jacob to adopt a method which in recent times has become very common in Wall Street, that of doubling his capital "by watering the stock."

The law of Lycurgus that Spartan women when pregnant should look constantly at statues of Castor and Pollux, representing strength and beauty, so that their offspring might be similarly developed, must have been based on this belief.

Five columns of fine print in the catalogue of the Surgeon General's library at Washington demonstrate the copiousness of medical literature on this topic, and how largely it has occupied the medical mind. That maternal impressions may affect the form, development, and future character of the fetus, has been very generally accepted as true by women in all ages, and by men so far as they have any idea on the subject, without doubt.

Three of the most distinguished writers of fiction in modern times have based incidents on this belief, in a way which they would not have done if they had supposed that these incidents would be rejected by their readers as improbable.

Goethe, in his *Elective Affinities*, describes a case in which



strong mental impressions at the time of conception, or soon after, affected the child. Sir Walter Scott, in the *Fortunes of Nigel*, explains the extreme horror which a drawn sword always excited in James I, owing to the brutal murder of Rizzio having been committed in the presence of his unfortunate mother before he saw the light.

The theory of "maternal impressions" is the groundwork on which is constructed *Elsie Venner*, that remarkable novel by Oliver Wendell Holmes, most original in its conception, fascinating in its dramatic development, and most suggestive in the curious speculations with which it is interspersed.<sup>1</sup>

Medical writers with hardly an exception, down to the beginning of the 18th century, express the belief, with more or less distinctness, that fetal marks and deformities are due to the emotions, desires, or shocks of the pregnant mother.

Writers have given quotations from supposed treatises by Hippocrates which clearly avow this doctrine, but that these are genuine treatises by him is now generally questioned by scholars. But no one doubts that they were written by some very ancient medical author of high authority. Paulus Ægineta<sup>2</sup> gives some interesting quotations from ancient

<sup>1</sup> An article in the *Boston Medical and Surgical Journal*, vol. xx, 1839, p. 98, quoted from the *Southern Medical and Surgical Journal*, vol. iii, 1839, p. 381, on the *Snake Man*, Robert H. Copeland, may have consciously or unconsciously suggested the character of *Elsie Venner*. The man was then twenty-nine years old. "His mother when six months pregnant was struck, but not bitten, by a rattlesnake. She was so forcibly impressed that her child when born had a face resembling that of a snake, i. e., his teeth are like fangs, his eyes and mouth like those of a snake. He has not control over his right arm and leg, the joints of which are singularly loose. At times his right arm will coil up close to his body, and then will project and strike at an object four or five times just like a snake. His right foot and leg will then execute similar movements. His face then simultaneously becomes excited, the angle of his mouth is then drawn backward, the eyes snap, the lips separate, showing the teeth, and the entire aspect becomes snaky." There are more details of a similar character for which I will refer to the original paper.

The names of six physicians are attached to the foregoing account, certifying that it is substantially true.

<sup>2</sup> *Sydenham Society Transl.*, 1844, Commentary on Book I.



authors, who believed strongly in the influence of maternal impressions on the fetus. Galen (ad Pisonum), Soranus, Hesiod, and Heliodorius are especially quoted.

Ambroise Paré,<sup>1</sup> in Book XXV, entitled *Of Monsters and Prodigies*, describes and figures many instances, and in chapter vii he very distinctly avows his belief in the influence of maternal impressions on the fetus.

In short, without referring to the many other authors who have written on this subject, I think it may be truthfully said that, down to the beginning of the 18th century, this was the accepted belief of the medical profession. Blondell, an English physician, appears to have been the first to question this theory, in 1727. He was followed by Hallé, Burdach, and Buffon.

Within the past twenty-five years, many papers have been published in which this theory has been strongly controverted.

In my judgment, the most able and the most scientific is an elaborate article of nearly sixty pages by Dr. J. G. Fisher, of Sing Sing, N. Y., entitled,<sup>2</sup> *Does Maternal Mental Influence have a Constructive or Destructive Power in the Production of Malformations or Monstrosities at any Stage of the Embryonic Development?* The paper concludes with twenty-three deductions, the most important of which I will quote.

1. "That traditional superstition has perpetuated the notion that malformations are the result of mental emotions."

2. "That the medical profession is in no inconsiderable degree responsible for the existence of and continuance of this popular error."

3. "That various intense emotions are common with gestating women, and apprehensions of malformation of their offspring exist in the minds of a large portion, yet abnormal births are extremely rare."

4. "That there is nothing like law in the alleged results of maternal mental influence in the production of malformations."

<sup>1</sup> London, 1634.

<sup>2</sup> *American Journal of Insanity*, January, 1870.

5. "That the occasional apparent relation of cause and effect is due, in most instances, to accidental coincidences, which would be far less frequent if the facts could be obtained *previously* instead of *subsequently* to the birth of the child."

6. "Such evidences are not sufficiently numerous and authentic to warrant a rational belief in the origin of monstrosities from the perturbed emotions of the mother's mind."

7. "Like causes produce like results, whereas we find that in a series of cases of any special variety of malformation mental emotions arising from a considerable number of dissimilar objects, even of the most diverse character, are assigned as the cause."

8. "In a large proportion of the cases of malformation, no mental or even physical explanation is offered by the parents or friends."

9. "There is no relation between the number and character of these mental emotions and apprehensions of pregnant women and the actual frequency and variety of malformations."

10. "That some of the assumed causes are alleged to have operated upon the embryo or fetus subsequently to the named period for the evolution of the part which is found to be the seat of the malformation, thereby implying a distinctive as well as a metamorphosing power."

12. "Malformations identical in kind and in degree recur again and again in the human subject, and admit of a systematic classification, definite and distinctive."

13. "Every form of malformation and monstrosity in the human subject has had its exact morphological counterpart in the lower animals."

15. "The only rational and scientific explanation is to be found in pathological histology."

16. "Monstrosities are not the result of embryological and physiological laws, they are the products of embarrassments to normal development."

17. "Vices of conformation and monstrosities are due to either retarded or excessive development."



Dr. Fisher is known as an accomplished student and authority on teratology, and his deductions on this subject will be largely accepted by most scientific men, but this is only a limited part of the question of maternal impressions.

Dugas<sup>1</sup> has written a strong paper in opposition to the theory of "maternal impressions," and asserts that "it originated in man's natural love of mysteries and desire to account for everything." He says that "the only rational grounds for the belief are to be found in the occasional coincidence between the alleged cause and effect, but these are so rare, when compared with the countless number of instances in which the effect fails to follow the cause, that they must lose much of their force upon the slightest investigation." He denies that there is any channel by which the mental emotion can reach the fetus, and refers every supposed result of maternal impressions to coincidence.

"If," he says, "the emotions of the mother can affect the fetus so as to induce deformity, this must be done at the precise time at which the deformed locality is undergoing evolution, for the difficulty would much increase even if we had to presume that after the evolution had been completed the emotions of the mother would destroy it and reproduce an anomalous one in its place."

I must refer to another able paper, read before the Chicago Medical Society by Dr. Norman Bridge,<sup>2</sup> in opposition to the doctrine of mental impressions on the fetus.

As most of the reported cases give the third month of pregnancy and after, when the limbs are already formed, he holds it to be impossible that deformities can result in such from maternal emotions.

"A thousand sufficient forms of disturbance might occur," he says, "and each might be capable of interfering with perfect development. There might be too much or too little blood supplied to the fetus—the quality of this blood might be abnormal in countless ways. Accidents may occur,

<sup>1</sup> *Southern Medical and Surgical Journal*, September, 1866, p. 317.

<sup>2</sup> *Chicago Medical Journal*, August, 1875, p. 577.

blows and falls. There may be frequent attempts at miscarriage, or the mother may be syphilitic, or may have some acute disease. The maternal organism may be abnormal; indeed it would be useless to give all the influences capable of arresting or disturbing the development of the ovum." But he admits that "mental emotions may act through the blood so as to work the failure of a perfect development of the fetus," but "mental emotion does not act through the blood to disturb in the most wonderful manner a particular part of the body of the fetus, the part varying according to the particular mental impression." "To endow the blood with such weird intelligence as this would require is too great a load for our credulity. There is no philosophy in the theory that it so acts; all the truths of anatomy, physiology, and pathology are strictly against it." "It has nothing in its favor except the fact that in an occasional case a deformity occurs as, judging from an emotion really experienced, the mother expected it would."

In a paper read by Dr. D. S. Conant before the New York Academy of Medicine<sup>1</sup> on "Monstrosities" he argues that anomalies are the result of arrested development. His main argument against the theory of maternal impressions is based on the statement of Virchow that there is no nervous tissue in the umbilical cord, and therefore the only communication between the mother and fetus is through the medium of the blood.

In the discussion on the paper,<sup>2</sup> Dr. Detmold opposed the theory of maternal impressions, and reported a case tending to show that fetal deformities are due to arrest of development. The late Dr. Peaslee agreed with Dr. Detmold that arrest of development, not maternal impressions, was the true cause of fetal deformities. But he adds, "When the pregnant woman becomes the subject of intense anxiety, fear, or other kinds of mental emotions, the offspring might be more or less impressed. The reason for this

<sup>1</sup> *Transactions of the New York Academy of Medicine*, vol. ii, p. 269.

<sup>2</sup> *Bulletin of the New York Academy of Medicine*, vol. i, p. 363.



effect on the fetus could be explained by the close sympathy between the brain and uterus.

"The blood going to an impregnated uterus may be so altered in quality as to produce fatal effects on the fetus, if after a pregnant woman is frightened, a monster is produced in a *general* instead of a *special* way by the arrest of development. For it is a well-known fact that the fetus, during its various stages of development, passes through certain conformations which in general appearance very much resemble those of the lower animals."

Many other writers might be referred to who have advocated similar views; but I do not find any arguments in support of their opinions more forcible than those which have been quoted. I may mention as prominent in this number, Velpéau,<sup>1</sup> Ryan,<sup>2</sup> Demageon,<sup>3</sup> and Reinwilliers.<sup>4</sup>

But I think the weight of authority must be conceded to be in favor of the doctrine that maternal impressions may affect the development, form, and character of the fetus.

Montgomery<sup>5</sup> says, "Pregnant women should not be exposed to causes likely to distress, or otherwise strongly impress their minds." Rokitansky<sup>6</sup> says, "The question whether mental emotions do influence the development of the embryo must be answered in the affirmative. Seeing that many malformations originate in an arrest of development, and how frequently the former bears a certain resemblance to various animals, it is just conceivable that the development of the embryo may be so arrested by maternal emotions as *accidentally* to occasion a likeness between the object that produced the impression and the resulting malformation." This expression of sober belief by this eminent scientific German seems entitled to great weight.

<sup>1</sup> *Bull. des sciences médicales*, août 1827.

<sup>2</sup> *London Medical and Surgical Journal*, 1883, p. 176.

<sup>3</sup> "L'imagination considérée dans ses effets directes sur l'homme et les animaux," Paris, 1855, p. 325.

<sup>4</sup> *Hygiène pratique des femmes*, Paris, 1875, p. 78.

<sup>5</sup> *Signs and Symptoms of Pregnancy*, Philadelphia, 1857, p. 29.

<sup>6</sup> *Path. Anat.*, vol. i, p. 11.

Carpenter (*Physiology*) says, "No sound physiologist of the present day is likely to fall into the popular error of supposing that marks upon the infant are to be referred to some transient though strong impression upon the imagination of the mother; but there appears to be a sufficient number of facts on record to prove that the habitual mental conditions on the part of the mother may have influence enough at an early period of pregnancy to produce bodily deformities or peculiar tendencies. But, whatever the impression transmitted, it must be of a character to modify the nutritive materials supplied by the mother to the fetus."

This is an extremely important admission on the part of an excellent and conservative physiologist. The important points to be noted are that the causes should be habitual, acting on the system of the fetus through the blood, and acting early in pregnancy.

Dalton<sup>1</sup> says, "There is now little room for doubt that various deformities and deficiencies of the fetus, conformably to the popular belief, really originate in certain cases from nervous impressions, such as disgust, fear, or anger, experienced by the mother."

Flint<sup>2</sup> says, "It is often the case that when a child is born with a deformity the mother imagines that she can explain it by some impression received during pregnancy, which she only recalls after she knows that the child is deformed. Still there are cases which can not be doubted, but which in the present state of our knowledge of development and the connection between the mother and the fetus we can not attempt to explain." MM. Grimaud de Caux et Martin St. Ange<sup>3</sup> say on this subject, "Pregnancy is a function of the woman, as are digestion and the acts of secretion of various kinds, and, if these latter are affected by moral impressions, why should not the former be also similarly acted upon? If the composition of the blood be altered, is it possible that the fetus which is being developed

<sup>1</sup> *Physiology*, sect. iv.

<sup>2</sup> *Text-book of Physiology*, p. 896.

<sup>3</sup> *Histoire de la génération de l'homme*, etc., Paris, 1849, p. 252.



in the mother's womb by this fluid should not undergo detrimental changes."

Devay<sup>1</sup> says, "Both reason and experience establish the fact that mental impressions of the mother may influence the fetus so as to give rise to an aberration of which *the form will correspond to the emotion acting upon the mother, and that there is consequently no doubt that deformed infants are thus produced.*"

I may add the names of Isidore Geoffroy Saint-Hilaire,<sup>2</sup> Allen Thomson,<sup>3</sup> and Hammond,<sup>4</sup> all of whom express their belief in the positive influence of maternal impressions on the fetus.

It will be observed that all who disbelieve in this doctrine base their skepticism on what they regard as physiological reasoning, and chiefly on the assertion that there is no direct nerve communication between the maternal and fetal system, and that, therefore, nerve impressions can not be transmitted to the fetus. Deformities, they urge, are due to arrest of development, but no one has brought forward any sound physiological reason why this arrest of development may not have been caused by maternal impressions, affecting fetal nutrition by their influence on the maternal blood, as well as by falls, injuries, diseases, intra-uterine amputations by ligation of the umbilical cord, and the various other causes which have been assigned. Those numerous changes in fetal development where the effect corresponds with known maternal impressions, of which hundreds perhaps have been published, are considered as simply coincidences. But if mathematical calculation could be made as to the chances for such a coincidence, I believe that the odds would be so enormous as to be almost beyond enumeration. My personal acquaintance with the profession leads me to

<sup>1</sup> *Traité spéciale d'hygiène des familles*, Paris, 1858, p. 329.

<sup>2</sup> *Hist. gén. et partic. des anomalies de l'organisation chez l'homme et les animaux*, Bruxelles, 1837, tome iii, p. 377.

<sup>3</sup> *Cycloped. of Anatomy and Physiology*, vol. ii, p. 474.

<sup>4</sup> *Treatise on Insanity*, p. 2.

suppose that a very large majority of obstetricians utterly disbelieve in this influence, and I ascribe this skepticism to the fact that, while they find this belief almost universal, to such an extent as to cause great anxiety in many of their patients, especially if they have been subjected to any strong emotion, yet the verification of this apprehension is so extremely rare that probably not one in a hundred of practicing obstetricians ever meets with a convincing case. How frequently after the birth are the questions asked, Is the child perfect? Has it any marks?

Extremely rare as is the occurrence of cases which prove the result of this influence, yet I think the fact is so well proved by sufficient authentic evidence as to make it as certain as any other fact which can not be explained by science, and there are many such. Indeed, in the light of all the evidence which has been accumulated on this point, it seems to me as reasonable to deny the occurrence of earthquakes because philosophy has not yet been able to give a satisfactory explanation of their cause.

I think that the subject has been obscured by the tendency to restrict the term "maternal impressions" to purely emotional causes, and that it really includes those which have a physical as well as psychical origin. Indeed, we have some reason for believing that these causes may act effectively on the ovules before fecundation, or even modify the action of the ovary in the performance of its specific function of forming and developing ovules. The idea was first suggested to me by the following case, well known to several others besides myself:

CASE I.—In February, 1859, I was requested by a well-known physician of this city to visit with him his niece, a young lady, eighteen years of age, and an only child. She had been very peculiarly insane for nine weeks, and had been visited by two prominent alienists, Dr. Benjamin Ogden and Dr. Tilden Brown, who had suggested that her mental condition might possibly be due to some uterine trouble. Previous to this illness she had been always of a bright, happy



temperament, fond of study and reading, and was regarded by her teachers as unusually clever in her studies, and as possessing quite a remarkable talent for music. The history given me was this: During the preceding Christmas holidays she was taken for the first time to the theatre, and witnessed the play of "Our American Cousin," which was then on the stage at Laura Keane's theatre, with a cast which has never since been equaled. She was greatly excited and slept none that night, and for a day or two talked of nothing else, until she was sharply reprov'd for this by both her father and mother. From this time she entirely ceased talking, rarely answering in the briefest terms any question, but passed her whole time, except when prevented, in writing letters to Lord Dundreary, who was to her a real personage, and not Sothern the actor. It was said that she must have written hundreds of these letters, which were filled with expressions of a sentimental love, quotations from the *Songs of Solomon*, Bailey's *Festus*, and such writings, but never expressed sexual passion. Both her mother and her nurse, who had been her wet-nurse in infancy, and had always been with her, assured me that there never was the slightest erotic manifestation or indelicacy of either language or conduct, and that there was no reason to suspect self-abuse. Menstruation had begun when she was thirteen, and had always been regular until the previous September, when, without any known cause, it had ceased. So far as could be learned, she never had had leucorrhea. For some weeks it had been difficult to get her to take sufficient food for existence, and for one period of four days all that she did take was forced down. Her general health improved greatly under constitutional treatment, and early in May she menstruated for three days, and in June for five days, her normal period. She had entirely ceased to talk about Lord Dundreary, and would sometimes occupy herself in reading or fancy needle-work, but was generally *distract*, listless, and taciturn. I now urged an entire change by a trip to Europe, but three years of her childhood had been passed there, and she most strenuously objected to leaving home. She finally was induced to consent by the argument that her father, who had long been a sufferer from rheumatic gout, might be cured by a course of baths at Wiesbaden. After leaving this watering-

place, they traveled in Switzerland, and then went to Italy for the winter. During this time her health, both of body and mind, was entirely restored. While in Rome she met with a young man, whose family were well known to her father and mother, and who was personally agreeable to them, and they consented to an engagement ; but, fearing a possible recurrence of her former maladies, they insisted, without giving any reason, that the marriage should be postponed for a year. The mother afterward told me that her husband and herself often seriously discussed the question whether it was not their duty to inform the young man of the previous peculiar illness of their daughter, but they could never bring themselves to do it. The second year was passed very much like the first, by a stay of six weeks in Wiesbaden, and then traveling in Rome for the winter. The civil war of this country greatly distressed the father, who had large interests in the South, and in May, 1861, the family made their arrangements to return home ; but the father was taken ill and died in Paris. Before his death, he foresaw the end, and advised immediate marriage, which took place in Paris. The family returned to New York in September. Early in February, 1863, I attended the daughter in her first confinement with a fine, healthy boy. When this child began to walk and to talk, on account of certain peculiarities his father began to call him Dundreary, greatly to the terror and distress of his grandmother and the old nurse, who feared that it would awaken painful memories in the daughter, who never once had alluded to her former illness. The boy's walk was always by a little skip, with the left foot forward. He had a very curious stammer, and his left brow was drawn down with the lids partially closed. The grandmother several times urged me to remonstrate with his father for calling him by such a name, telling me, with tears in her voice, that her daughter also was getting the habit of calling him so, and that his little playfellows called him "Dunny." I, however, persuaded her that silence on the subject was the part of wisdom. This is the only child that the lady has ever had. The child, now twenty-three, was educated abroad, and I saw him for the first time in several years last winter on the street, and then noticed that his left eyebrow had much the appearance which



we see in Englishmen who are in the habit of wearing one eye-glass, and that his first two or three steps after stopping were with a little skip, his left foot forward, but he seems to have quite overcome the habit of stammering.

I have no theory to offer in regard to this case, but will simply ask if it be possible that the condition of the nervous system during insanity acted so effectively on the ovarium as to modify the development of the ovule which was fecundated several years subsequently, and thus caused the peculiarities of the child after birth. Darwin<sup>1</sup> says that "it is even probable that either the male or female sexual elements, or both, before their union, may be affected in such a manner as to lead to modifications in organs developed at a late period of life, in nearly the same manner as a child may inherit from his father a disease which does not appear until old age."

CASE II.—A lady, a typical brunette, was first married in 1850 to a gentleman who was an equally typical blonde. She was never pregnant by him, and he died of phthisis in 1856. She married in 1861 a former partner of her first husband, and a double second cousin of herself, that is, the father of one and the mother of the other were first cousins. Her husband is as marked a brunette as herself. Her first child was born April, 1862, and has very light, almost white, hair, eyebrows and eyelashes. The extraordinary resemblance to the first husband is often spoken of by acquaintances, and I have often been asked how I accounted for it. I must say that I do not see the resemblance, except in the coloring and the habit of incessantly winking, which the daughter has in common with the first husband. But the curious point is, that all known relatives of both husband and wife are brunettes. I may add that three children which the lady has had since the birth of these first are brunettes with very dark complexions.

Many analogous cases have occurred with animals. The case of the Arabian chestnut mare of Lord Morton, which

<sup>1</sup> *The Variations of Animals and Plants*, etc., Appleton & Co., vol. ii, p. 257.

bore a hybrid to a quagga, and afterward produced two colts by a black Arabian horse which were striped, and had other distinctive marks of the quagga, is often quoted.<sup>1</sup>

Darwin<sup>2</sup> mentions a similar case in a horse bred by Lord Mostyn, which had previously borne a foal by a quagga. The same fact is known in regard to the influence transmitted by a first impregnation to subsequent progeny<sup>3</sup> of many animals.<sup>4</sup> Darwin says, "Similar cases have so frequently occurred that careful breeders avoid putting a choice female of any animal to an inferior male, on account of the injury to her subsequent progeny which may be expected to follow." He adds, "Some physiologists have attempted to account for these remarkable results from a previous impregnation, by the imagination of the mother having been strongly affected; but it will hereafter be seen that there are very slight grounds for any such belief. Other physiologists attribute the result to the close attachment and freely intercommunicating blood-vessels between the modified embryo and mother. But the action of foreign pollen on the ovarium, seed-coats, and other parts of the mother-plant strongly supports the belief that

<sup>1</sup> *Philos. Trans.*, 1821, p. 20.

<sup>2</sup> *The Variation of Animals and Plants under Domestication*, Appleton & Co., New York. Vol. i, p. 435.

<sup>3</sup> *Idem*, note, p. 436, in which instances of this result are quoted in mares, sheep, sows, and dogs.

<sup>4</sup> Two years ago I was visiting a place in England whose owner had a great fondness for breeding horses, cattle, and dogs of the purest blood. From him I learned much that was most interesting and new to me, in regard to the care taken in securing the propagation of the best, and he told me a very curious story of one of his dogs. I wrote to him this summer, asking if he would kindly give me the story in writing, as I wished to be perfectly accurate in the use of the fact. The following is an extract from his reply:

"I was riding on horseback through a small village on my estate, and had with me a highly-bred greyhound bitch which was in heat. As we went by the blacksmith's shop, a number of mongrels ran out and after the bitch. My groom and myself whipped all off except a pertinacious little ugly cur, who ran along for a mile and a half, but *never touched the bitch*. He then got so tired with the race and the beating that he left. When the bitch got home, she was put with a dog of her own breed, but when she cast her puppies they were the image of the ugly little cur."



with animals the male element acts directly on the female, and not through the crossed embryo.”

I will now relate three cases which have occurred in my own practice, where the evidence of the influence of maternal impressions seems to me irresistible.

CASE III.—A lady, the mother of four children, the youngest ten years of age, had, in each of her pregnancies, suffered to a severer degree than most women from nausea and vomiting up to the sixth month. At a very early period of her fifth pregnancy (it is certain that it was in the first month) her eldest daughter, aged fifteen, went into a jeweler's with some companions and they had their ears pierced for rings. Both ears became inflamed and suppurated, and they were a long time in healing. The sight of this daughter, the sound of her voice, or even the mention of her name, always brought on most violent retching and vomiting, and this was so severe and persistent as to dangerously interfere with her nutrition. The daughter was sent away to make a long visit at the house of her uncle. She was brought home fully a month after her mother's nausea had entirely ceased. The ears had become perfectly well; but when she entered the house and her mother threw her arms around her, to welcome her, the vomiting at once returned, and continued so incessant and distressing that I was extremely anxious for several days as to the result. The daughter was again sent away, and remained until after the birth of the child. I did not reach the house until two hours after the child was born, and the mother was then quietly sleeping. A very dear friend of hers was at the house, the mother of one of the Fellows of this Society, who took me into an adjoining room to see the baby, and pointed out the lobes of its ears, which had the appearance of having been bored. She then showed me that each ear had an aperture, and passed through one a twisted thread. My impression is, that it was only tried on one ear from the fear of making the child cry and awaking the mother. But it was a subject of common remark with many friends, during the childhood of this infant, that his ears looked as though they had been bored, and I well remember that his father, a graduate of West Point, and a dis-

tinguished officer in our army, told me that, when this son entered as a cadet, one of the officers of this institution asked him "if his son's ears had been bored on account of weak eyes."<sup>1</sup> I must add that the mother, a very bright, intelligent woman, was greatly amused and interested by these peculiarities in the ears of her child; but she always assured me that the anticipation that he would be marked in this way had never once entered her mind.

CASE IV.—A lady was married at the age of twenty, when her father made her a present of a house. She was absent on her wedding-trip for two weeks, and then went to the Gramercy Park Hotel to stay while her house was being repainted and decorated, and such furniture as she wished was selected and purchased. She had not menstruated since her marriage. On her first day at this hotel she went to the *table d'hôte* and found herself seated opposite a gentleman with three daughters who all had hare-lips. (This family was well known.) The first glance at them made her so faint that she at once left the table, and always after took her meals in her private rooms until she moved to her own house. She never mentioned her reasons for this even to her husband, nor had she any suspicion that she was then pregnant. I attended her in her confinement, which was a very laborious one, and she was delivered by the forceps, profoundly under the influence of chloroform. I saw at once that the child had a double hare-lip, and sent for Dr. Carnochan, who had finished the operation before she awoke from her chloroform sleep. On becoming conscious she demanded to see her child, saying that she was certain that it had a hare-lip. I refused to allow her to see the child until the next morning, and gave her a full opiate. The operation was remarkably successful, the mother did well, and the child, now nearly thirty, would not attract attention by the appearance of his lip, but only by an indistinct articulation of a few words.<sup>2</sup>

<sup>1</sup> It is a popular belief in New England, and perhaps some other parts of the country, that boring of the ears and wearing rings in them is a great remedy for weak eyes.

<sup>2</sup> I may here say that this is the only case which has occurred in my practice in which any peculiarity of the child had been anticipated by the mother, although the apprehension has been strongly expressed by many. I may also add



CASE V.—Mrs. —, who had been married but a few weeks, was at the theatre with her husband and other friends. Something, she knew not what, vexed him, and he placed the point of his elbow on her hand, which was resting on the arm of her seat, and held it so firmly that she could not draw it away. Not wishing to make a scene in the theatre, she bore it silently until she fainted. The fingers were much swollen and very painful for several days. She never lived with her husband afterward, and subsequently obtained a divorce on the ground of cruelty.

Thirty-five weeks and three days after the theatre incident I attended her, when she gave birth to a son. On the left hand, the first and second phalanges of all the fingers and the thumb were absent, looking as if they had been amputated. She has lived abroad most of the time since the divorce. I saw her in London, in August last, for the first time in several years, and examined the hand of the lad, now fifteen years old, and unusually bright and clever. In reply to a question from me, which she says I had repeatedly asked in the infancy of her child, she assured me that never once during her pregnancy had the thought occurred to her that her child would be born with this deficiency.

Dr. Hunter McGuire, of Richmond, Va., recently related to me the following case of which he was cognizant :

that this is the only case of hare-lip that has occurred in my private practice ; but I have seen it in three other cases in consultation, in two of which I delivered by forceps and in one by version. Not one occurred during my long service in charge of the lying-in wards of Bellevue Hospital. I may be pardoned for a few words not pertinent to the subject of this paper. In the beginning of my obstetrical practice I made a very careful study of those emergencies which may suddenly arise and demand prompt action, in order to establish in my mind the fixed principles which should govern me without doubt or hesitation. One of them was the question whether hare-lip should be operated on immediately after birth or delayed until a later period. My decision was in accordance with my action in the present case. The same course was followed in two of the cases which I saw in consultation, and with a success which caused no regret. But in the third my friend, the attending physician, held very decided convictions that the operation should be postponed until a later period. Dr. James L. Little, who was called upon afterward to operate a second time, informed me that the result of the first was very unsatisfactory.

"A slave, in order to avoid being sold to another family, cut off one of his great toes with an axe in the presence of his pregnant mistress. When her child was born one foot was without a toe, and the stump greatly resembled that of the negro. Dr. McGuire was not able to inform me as to the period of pregnancy when the self-amputation of the negro occurred, but he added that he could not learn that the lady had ever anticipated the mutilation of her child."

In closing this paper, I beg to quote the two following sentences from an editorial article on this subject in the *British Medical Journal* of June 16th, 1877, p. 748, which seems to me very sound: "When, in the early weeks, structural development is proceeding at no tardy rate, an interference of nutrition of the mother can not but impress the fetus detrimentally, and the organ interfered with would be that one in the condition of most active development, or that which could less easily bear any arrest, however transient, with impunity."

Again: "Then, too, although no nervous connection has been demonstrated to exist between the mother and fetus, yet the latter possesses nerves; and alterations of the nutritive power of the mother can not but act on the nerves that are governing, though it may be only to a slight extent, the growth of the fetus itself."

I have not deemed it wise to occupy the time of the Society by quoting any of the very numerous cases which have been before published as supposed proofs of the influence of maternal impressions. But I have great pleasure in acknowledging my indebtedness to Dr. H. C. Coe for the trouble that he has taken in looking up for me and verifying the literature of the subject. As many may wish to read for themselves this curious collection of proofs or coincidences, as each may regard them, I have appended a reference to the most important cases published within the past quarter of a century.



## APPENDIX.

The following paper is taken from a small volume<sup>1</sup> published forty-three years ago, and now out of print, and is the first medical paper ever published by Dr. Sayre. On account of the originality and ingenuity of the theory which it propounds, I think all will deem it well worthy of being rescued from the oblivion of a non-medical work and made known to the profession :

"NEW YORK, May 10, 1843.

"Agreeable to your request, I send you my *theory* explanatory of the formation of *nævi materni*, or the influence of the mind of the mother in determining the developments of the *fetus in utero*.

"It has been for a long time a disputed point whether the mother had any influence upon the *fetus in utero*, in causing it to be marked, or in any way deformed, by having any strong impression made upon her mind during gestation ; and whether there was any similarity in these marks, or deformities, and the impression under which she labored.

"It is now, however, almost incontestably proved, and generally admitted, from the number of cases that have occurred in which the mother has, previous to the birth of the child, described exactly the position and character of the deformity which has afterward been found to exist, and agree so exactly with her previous description, that it becomes our duty to inquire into the *causes* that have produced these effects, and ascertain, if possible, the intricate sympathies existing between the mother and child, and the *laws* which govern these sympathies, and see if they can not be converted to some good account.

"If, for instance, we find that from some horrid sight, or loathsome object, presented to the female during pregnancy, she becomes impressed with the idea that at birth her child will bear this or that particular deformity, and time develops her fears to have been well grounded, and her suppositions prove true, it is but reasonable to suppose, from analogy, that

<sup>1</sup> *Facts and Arguments on the Transmission of Intellectual and Moral Qualities from Parents to Offspring.* (Name of author not given on title-page or in the book.) New York : T. Winchester, publisher. 1844. Second edition.

could we have made an *equally strong impression* of a *different kind* we should have produced a *different kind* of growth or formation, *according to the impression under which she labored.*

“Taking, then, this principle for granted, which I hope hereafter to prove true by facts, it becomes our duty to surround the female during pregnancy with every object which would have a tendency to develop both the *physical* and *mental* frame of the fetus, in the most perfect degree, and of the highest order.

“We all admit that it is by the *nerves* we receive impressions ; that it is *through* them that the *will* is conveyed to the different parts of the system ; that the *vessels* are the *executors* of the will ; and that secretion, absorption, the different growths, developments, etc., are the *result* of this work carried on, or performed by the *vessels* and *controlled* by the *nerves* ; or, in other words, the *brain* and *nervous mass* *superintends*, or *orders*, the *vessels* *obey these orders*, and the different growths, etc., are the *result* of the work.

“If, then, the *nervous system* or *controlling power* be *disturbed*, the *orders* are given *wrong* ; the *vessels* *obeying* these *wrong orders*, and *acting in compliance with them*, an *unnatural* or *deformed product* is the *necessary result*.

“We all admit again that the child has *not an independent* existence until *extra-uterine* life ; neither has it an independent *will* ; but *it* also is dependent upon the mother, is under her control, and must, of course, *act in accordance with hers*.

“If, then, the will, thought, impressions, mind, or *controlling power*, so to speak, exists entirely in the brain and nervous masses, when endowed with life (as without them we can receive no impressions) ; and if the *vessels* act entirely under the control of these *nerves*, and the different *growths, developments*, etc., are the *result* of the *action* of *these vessels*, and if the *will* of the *child* is *dependent entirely upon that of the mother*, it follows, as a matter of course, the *developments* of the *child* *being the result of the action of its vessels*, which vessels are controlled by its nervous system, and it again entirely dependent on the mother, that these various developments must be in accordance with the various impressions made upon her mind.



"This, it seems to me, is the most satisfactory explanation of the various morbid developments that have occurred in children born of mothers who, during pregnancy, have labored under some strong mental impression as regards their child's deformity, and who have previous to delivery accurately described the deformity which has afterward been found to exist.

"Of the proof of this we need only refer to Dr. Elliotson's work,<sup>1</sup> who gives some well-described cases. I am also permitted to refer to Dr. Gilman,<sup>2</sup> Professor of Obstetrics in this city, who can confirm it by a number of cases;<sup>3</sup> and I can corroborate it by one that came under my own observation.

"If, then, this explanation be admitted, I think the immense importance of my first position clearly proved, viz., that of surrounding the female, during this most interesting period, with every influence which would have a tendency to produce the most favorable impressions for the most perfect development of the fetus, both *physically* and *mentally*.

"Again, it is generally admitted concerning any system, whether nervous, vascular, or muscular, that it is capable of performing function in an exalted or diminished degree, according to its development, as regards strength and activity.

"If, then, we admit that by the *exercise of organs* we *increase their power of performing function*, as is proved by comparing the arm of the blacksmith with that of the writing-master; and also that the *brain* is the seat of the intellect or mind, as proved by acephelous children, who, having no brain, are deficient in its Godlike attributes; and if the *mental* organs can be *increased in power as well as the physical*, and if the *child's* organs are developed in *harmony* with the *mother's*; with what vast importance do we find this interesting question surrounded, and what strong appeals from future generations are made upon the fondly expecting-to-be mother to exercise both her *physical* and *mental* powers to their greatest degree,

<sup>1</sup> Elliotson's *Physiology*.

<sup>2</sup> Formerly Professor of Obstetrics and Diseases of Women in the College of Physicians and Surgeons, New York.

<sup>3</sup> "These cases, and those referred to in Dr. Elliotson's work, are too distressing and painful in their nature for insertion in a work intended for the perusal of the most sympathetic and sensitive portion of the sex."

in order that she may be the happy bearer of an offspring gifted in these essentials for future usefulness in their highest degree of development, both as regards strength and activity.

"If these few hasty thoughts shall have a tendency to awaken in mothers an interest in this most interesting but too long neglected question, the writer will be more than amply repaid by the consciousness of having conferred a boon upon future generations.

LEWIS A. SAYRE."

#### REFERENCE TO PUBLISHED CASES.

*British Medical Journal*, October 5, 1878, p. 543, one case by Dr. Glyn Whittle.

*British Medical Journal*, July 14, 1877, p. 36, two cases by W. Whitelaw.

*British Medical Journal*, July 14, 1877, p. 67, one case by William Smyth.

*British Medical Journal*, July 28, 1877, p. 96, one case quoted from *Carter on Hysteria*, by William Sedgwick.

*British Medical Journal*, August 25, 1877, p. 282, one case by Dr. Augustus Hess.

*British Medical Journal*, November 3, 1877, p. 655, two cases by Dr. Jasper Cargill.

*Medical and Surgical Reporter*, January 27, 1877, six cases by Dr. J. S. Hill.

"Proceedings of Philadelphia County Medical Society," *Philadelphia Medical Times*, November 25, 1876, eight cases reported by Dr. William T. Taylor.

*Cincinnati Lancet and Observer*, one case reported by Dr. C. O. Wright, who also quotes two from Montgomery, *Signs and Symptoms of Pregnancy*, discussion on Dr. Wright's paper.

*American Journal of Obstetrics*, vol. i, 1878, p. 634, in which our President, Dr. Thad. A. Reamy, reports one case.

*British Medical Journal*, August 26, 1876, p. 270, one case reported by Dr. W. J. H. Wood.

*British Medical Journal*, March 24, 1877, p. 376, one case reported by T. D. Saunders.

The *Boston Medical and Surgical Journal*, vol. xx, 1839, p. 98, quotes from the *Southern Medical and Surgical Journal*, vol. iii, 1839, p. 381, the story of "The Snake Man."



Since the meeting of the Society, and since an abstract of the foregoing paper has appeared in several medical journals, I have received numerous letters from different parts of the country, twenty-six in number, describing cases of supposed maternal impressions on the fetus. The following three cases are the most striking. The first was related to me by my friend Dr. A. Brayton Ball, of this city, who afterward, by my request, had the kindness to give me the statement in writing.

"The facts in the case of 'maternal impression,' which I mentioned to you a few days ago, are briefly as follow: Mrs. B., a woman of highly nervous temperament, pregnant between two and three months with her first child, was much startled by seeing a child about ten years of age with an hypertrophied, prolapsed tongue.

"The child's appearance was extremely repulsive, and so shocked Mrs. B. that she nearly fainted.

"From this time on she was apprehensive that her child would be 'marked' in the same way, and this fear was shared by her aunt, who was present when the incident occurred, though the matter was never afterward referred to between them during the pregnancy. At birth, Mrs. B's. child presented exactly the same deformity. The tongue was hypertrophied, and hung down over the lower lip, but with this exception was perfectly formed. The tongue remained outside of the mouth until the child was several years old, and then gradually retreated into the cavity, but has always remained sufficiently large to interfere with the proper enunciation of words. No similar case has been known in either branch of the family, and several children have been born since then, all perfectly developed. I regret that I can not state the exact period of pregnancy when the 'maternal impression' was made, as it happened nearly thirty years ago, but the date probably fell between the limits I have mentioned. Mrs. B., though not a patient of mine at the time, became so afterward, and her account of the case agrees in every particular with that given me by her aunt, who was with her when the incident occurred, and at her confinement.

"I make no comment on the case, except to say that I regard it as in the highest degree improbable that the only relation between the two events is that of mere coincidence."

The history of the following case I received in a letter from Dr. Thomas W. Shaw, of Pittsburg, Pa.

"A singular and typical case occurred in my practice recently, that stamps the fact of such mental impressions beyond a doubt.

"A lady residing in the country, a short distance from the city, about six or eight weeks advanced in pregnancy, was horrified to find that one of her children, while playing about the stable, had the tine of a pitchfork run through the right hand where the carpal bones and forearm join. At the normal end of gestation I delivered her of a full-grown, healthy male child, who had the right hand *entirely absent*. The stump was a perfect amputation, with a very small excrescence that showed rudimentary fingers and thumbs.

"She remarked to me at once, that was just where she thought 'Jimmy's hand was cut off with the pitchfork.'"

The following is from Dr. J. A. Robison, of Chicago, Ill.

"As accumulative evidence for your paper on the 'Influence of Maternal Impressions on the Fetus,' I trust you will pardon me for relating the following: Mr. K.'s first wife was killed by the cars, both lower limbs being amputated. His second wife bore him a son with the lower extremities amputated above the knees."

This last case I regard as the most striking confirmation of the theory of Darwin, quoted in the paper, as to the direct influence of the male element on the female, that has ever been published in regard to the human race.

The question is naturally suggested, whether the impressions which led to the absence of the lower limbs in the fetus were not paternal rather than maternal.